MEASUREMENT TECHNOLOGIES

AMBIENT AIR AND METEOROLOGICAL MONITORING FOR TRUE GEOTHERMAL ENERGY COMPANY KILAUEA MIDDLE EAST RIFT ZONE, ISLAND OF HAWAII MAY 1990 DATA REPORT

Submitted to:

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True Geothermal Energy Company

Prepared by:

MEASUREMENT TECHNOLOGIES

July 1990

CN-137

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1.0 Introduction

Measurement Technologies has been contracted by True Geothermal Energy Company to conduct an air quality and meteorological monitoring program to support incremental exploration and development of the Kilauea Middle East Rift Zone Geothermal Resources Subzone (GRS), Puna District, Island of Hawaii. The data gathered in the monitoring program is being used in support of the exploration and possible development of the geothermal resource.

The monitoring program consists of two (2) monitoring sites. The first site (Site 1) is located in the Kaohe Homesteads area and the second site (Site 2) is located at the geothermal drilling and staging area D-1. The monitored parameters for each site are contained in Table 1-1. The sites are being operated consistent with the guidelines and requirements as outlined in the following documents:

- "Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)," U.S. EPA-450/4-80-012, November 1980.
- "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV. Meteorological Measurements," U.S. EPA-600/4-82-060, February 1983.
- "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II," Ambient Air Specific Methods, U.S. EPA-600/4-77-027a, May 1977.

As part of the monitoring program, Measurement will submit monthly and quarterly reports to True Geothermal Energy Company. The reports will contain the monitoring data, results of the quarterly quality assurance audits and results of quality control activities such as SO2 and H2S gas analyzer precision checks, level 1 and 2 checks and multipoint calibration results.

TABLE 1-1 Monitored Parameters

PARAMETER	SITE 1	SITE 2 (MET)
HYDROGEN SULFIDE (H2S)	X	8 PLS
SULFUR DIOXIDE (SO2)	X	X
WIND DIRECTION	X	X
WIND SPEED	X	X
VERTICAL WINDS		X
SIGMA THETA	X	X
SIGMA W		X
TEMPERATURE	X	
PRECIPITATION	X	
RAIN WATER (ANIONS & DISSOLVED METALS)	3 PLS	
METALS (ATMOSPHERIC PARTICULATE	X	
TOTAL SUSPENDED PARTICULATE (TSP)	X	
INHALEABLE PARTICULATES (PM-10)	X	
RADON		X

Section 2.0 of this report contains a operations narrative of significant events and activities that occurred during the month of May. Section 3.0 of this report contains the data collected during the month with graphical presentations and data capture summaries. The data is presented by site numbers and may also be referred to by name. Site 1 and 2 names are Air Quality/Met and Met Site, respectively.

2.0 Operations Summary

This section discusses the operations of the two monitoring sites and any significant events that may affect data quality. A downtime summary is also provided.

2.1 Monthly Operations Summary

Site 1 operations were routine for the month of May. Results of the radon samples exposed for the period 5/16/90-thru 6/1/90 indicated radon levels below the detectable limit.

Due to insufficient rain water amounts, the samples collected during the 5/1-16/90 were combined with the 5/17-31/90 samples. The samples had to be combined in order to obtain enough sample to analyze in the detection limit necessary. The results of the analysis are contained in Section 3.0, Table 3-8 of this report.

The filter analyses for metals and particulate in May show insignificant concentrations and loadings for the compounds of interest in the program. The results are contained in Section 3.0, Tables 3-9 thru 3-12. Quality control replicate analyses are shown in Tables 3-13 thru 3-16.

The continuous H2S and SO2 analyzers at Site 1 detected no SO2 or H2S levels during May. In addition, the H2S dosimeter badges located at the Drill site 2 show no concentrations of H2S during May.

2.2 Downtime Summary

This section presents the down time summary by site. Down time is considered any time an analyzer or sensor is not collecting valid data. Down time includes calibration time, data lost due to data validation criteria such as insufficient data

samples, sensors or analyzers operating outside of allowable limits, etc. Calibration and audit time and time lost due to maintenance and malfunctions is also considered down time.

Data capture at Site 1 was excellent in May, with all parameters exceeding 98 percent data capture. Site 2 also had excellent data capture in May with all parameters having 100 percent data capture for the second straight month.

The May 23, 1990 particulate sample for the integrated sampler was voided due insufficient run time. The sample ran for only 16 of the required 24 hours $\pm$ .5 hours. As a result, there is no metal analyses reported for this day. This is the first sample to be missed in the program.

2.3 Major Activities

No major activities were conducted in the month of May.

3.0 Data Summary

Section 3.0 contains monthly summary reports and statistic tables for all of the major monitored parameters. In addition, graphical wind rose plots, rain water analyses results, total suspended (TSP) and inhaleable (PM-10) particulate loading and metals analyses are also contained in this section. The data and associated graphical presentations are presented by site. Each sites data is organized and presented as follows:

- Monthly Summary Report containing the hourly values for each day of the month. Dashes contained in the place of any data signifies that the data falls into a down time category previously discussed in Section 2.0. An asterisk sign in the wind sigma theta signifies calm wind conditions.

- A graphical wind rose presentation will immediately follow the Monthly Summary Report. The wind rose displays a graphical presentation of the wind speed and direction at each site.

- Summary Statistic Tables containing the highest and second highest measured values, lowest value, arithmetic mean and standard deviation, data recovery rates and percentile breakdowns of measured values.

- TSP and PM-10 particulate data showing loading of each filter along with the elemental analyses of each metals filter (Site 1 only).

- Rain water analyses results showing each sample collected and the results of the metals elemental and anion analyses (Site 1 only).

3.1 Air Quality/Meteorological Monitoring Data Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM WD (DEG) DATA FOR: MAY 1990

HR-END DAY	HOURS (DST) 01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	329	312	309	290	304	304	337	344	347	1	15	1	100	73	74	72	353	348	14	346	323	319	310
2	320	284	0	318	295	277	312	334	343	347	6	3	60	66	92	91	8	353	27	19	0	0	0	320
3	313	306	313	315	304	301	315	339	350	346	348	354	355	347	350	346	346	350	338	336	335	335	338	337
4	338	333	330	328	330	328	327	333	340	347	349	352	345	349	349	348	349	346	347	340	336	334	332	330
5	333	324	323	337	336	333	345	348	336	342	347	347	349	349	350	348	345	345	342	342	345	344	346	349
6	349	349	346	345	343	338	339	343	348	353	352	358	355	356	352	353	352	347	350	344	341	340	340	334
7	341	331	332	330	306	304	303	324	334	333	341	348	10	0	355	357	352	354	352	345	345	345	345	345
8	349	351	357	71	325	328	332	338	344	335	338	336	332	343	344	344	343	326	321	317	319	314	313	317
9	321	322	311	307	295	309	314	330	322	347	348	355	4	24	80	17	353	358	355	359	326	324	211	179
10	291	289	225	272	204	236	248	297	317	333	358	20	92	29	357	102	108	123	112	110	114	0	0	0
11	296	294	180	196	322	0	317	336	348	2	19	1	3	349	351	347	352	350	350	348	342	336	331	331
12	325	325	323	320	319	311	311	333	343	349	360	351	357	353	350	351	349	350	350	344	329	322	317	309
13	303	303	304	300	284	270	286	312	325	342	343	356	2	359	357	360	353	357	348	23	0	270	0	278
14	275	282	273	275	262	276	298	317	342	5	350	17	28	9	354	70	65	4	353	4	356	345	341	338
15	330	323	317	317	315	314	311	325	342	344	350	346	348	348	352	347	349	348	350	344	327	319	319	317
16	313	314	313	308	306	306	302	317	339	347	347	350	351	352	353	352	350	348	350	339	328	319	310	317
17	314	312	314	322	323	316	315	335	334	344	340	346	350	342	340	346	346	340	330	325	326	317	321	320
18	319	317	320	312	313	313	297	331	334	330	348	353	357	353	350	349	346	348	348	341	345	340	341	342
19	337	331	323	327	326	326	324	327	339	341	336	344	341	342	346	348	350	349	347	333	339	334	347	338
20	329	331	330	333	317	326	329	332	340	341	350	350	351	351	352	352	353	357	350	332	333	341	346	348
21	346	358	348	348	350	346	339	352	36	352	36	1	3	355	350	349	348	350	350	349	350	349	352	348
22	346	346	341	344	337	337	342	338	344	342	351	351	348	351	350	348	348	349	345	337	330	328	329	325
23	324	322	322	321	319	322	317	321	321	331	344	347	342	332	338	337	333	331	322	323	318	319	317	314
24	313	315	314	308	343	346	339	348	350	351	348	347	352	352	350	353	350	351	348	340	335	334	334	325
25	319	332	328	334	329	70	7	53	38	8	350	350	4	349	351	349	348	349	347	341	336	332	331	330
26	321	317	313	317	311	334	325	332	340	348	351	2	16	358	352	350	351	348	349	350	348	346	340	346
27	345	345	341	335	324	303	349	342	15	32	38	0	355	357	351	6	359	348	348	346	344	359	344	333
28	342	340	325	335	333	330	334	344	343	349	349	353	349	350	351	355	349	350	350	351	348	339	335	339
29	339	334	339	335	324	332	346	334	336	353	352	349	351	353	347	350	349	340	349	341	337	347	350	351
30	3	347	331	332	335	336	331	339	342	352	348	352	355	356	347	353	348	352	350	349	323	324	247	312
31	325	304	317	306	327	338	329	336	348	345	341	355	359	349	349	350	351	350	350	347	347	330	328	332

Table 3-1. Wind Direction Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM WS (MPH) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.0	1.0	0.2	1.6	0.2	1.0	1.0	3.7	5.2	3.2	2.1	1.7	2.5	1.2	1.2	1.1	1.1	2.7	1.9	0.3	0.3	2.1	2.5	1.0
2	1.5	0.4	0.0	1.8	0.8	0.1	0.9	3.4	4.2	3.4	2.3	2.5	1.4	1.4	1.7	1.4	1.7	2.3	0.3	0.1	0.0	0.0	0.0	0.9
3	1.6	0.6	1.8	2.6	0.8	1.1	1.2	4.9	4.5	6.0	5.7	5.1	6.2	6.6	7.0	6.3	7.9	7.1	10.3	10.5	10.8	11.8	10.5	9.1
4	8.5	9.0	9.2	9.0	8.5	9.1	9.1	9.9	10.6	10.5	10.1	9.6	10.2	8.6	10.1	10.0	9.5	8.9	7.6	7.1	7.7	7.5	7.3	6.6
5	6.1	5.9	4.5	4.4	5.8	6.5	5.6	4.3	6.5	7.4	10.0	10.2	9.8	8.6	8.3	8.9	8.5	8.5	7.5	7.5	7.9	7.2	6.6	6.5
6	6.8	6.7	7.3	6.8	7.4	7.3	6.9	6.2	5.2	4.8	5.0	4.3	4.8	4.3	4.6	5.7	4.8	4.5	4.7	3.9	4.5	4.4	3.7	4.1
7	4.4	2.0	2.4	3.0	2.2	0.9	0.8	3.5	5.7	6.7	6.1	4.1	3.0	4.0	3.3	3.5	3.3	3.6	2.9	2.5	2.4	2.1	2.3	0.6
8	0.1	0.7	0.4	0.3	0.2	1.3	3.0	4.1	3.6	4.7	3.7	4.9	5.2	4.8	5.0	4.4	4.8	4.2	3.4	2.9	3.8	3.3	1.9	3.1
9	3.4	3.3	3.2	1.5	0.4	0.4	3.0	6.1	4.8	3.9	4.8	3.0	2.5	2.0	1.1	1.5	2.6	2.5	0.6	0.0	0.7	2.6	0.1	0.2
10	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.6	3.4	3.2	2.0	1.6	0.6	1.4	2.8	1.5	1.6	0.9	0.4	0.1	0.2	0.0	0.0	0.0
11	0.0	0.0	0.1	0.1	0.1	0.0	0.0	2.3	2.9	2.0	1.5	2.4	2.9	3.4	3.7	3.8	5.1	5.3	4.9	4.3	4.1	3.9	4.9	3.3
12	3.8	3.5	4.0	4.6	4.2	2.7	2.1	5.4	5.4	4.6	3.6	4.5	3.7	3.9	5.5	4.6	5.4	5.5	5.4	4.4	4.9	4.9	4.5	3.2
13	2.7	2.3	2.3	1.1	0.4	0.0	0.7	2.4	4.1	4.7	3.9	2.6	2.7	4.2	4.7	3.9	3.8	2.3	1.8	0.1	0.0	0.0	0.0	0.1
14	0.3	0.2	0.2	0.3	0.3	0.4	1.8	2.4	3.4	2.0	1.9	2.2	1.4	2.7	2.5	1.0	1.1	2.1	2.5	1.3	1.4	1.5	1.6	1.9
15	3.7	3.9	4.1	4.3	3.2	2.1	0.9	3.2	4.9	4.9	5.9	6.4	6.8	6.6	6.7	7.0	7.0	6.3	5.0	3.9	3.9	4.4	4.8	4.8
16	3.8	3.7	3.9	3.0	3.3	3.0	2.4	4.1	6.5	5.6	5.6	4.4	4.2	4.5	4.9	4.7	4.0	4.4	3.3	3.1	2.9	3.8	2.4	2.3
17	3.5	3.9	3.8	4.0	3.1	2.8	3.9	5.8	7.2	5.7	6.5	5.8	3.7	6.7	7.3	5.3	5.7	5.1	5.4	5.4	4.5	4.9	5.5	5.0
18	4.3	4.2	4.1	3.1	3.3	2.5	0.8	4.3	4.5	6.0	5.5	4.6	3.7	4.4	5.1	4.7	4.0	4.2	3.0	2.8	2.0	2.3	0.4	2.5
19	4.2	5.6	5.5	5.8	6.2	5.5	6.3	6.0	7.1	6.8	7.6	8.1	6.2	7.2	5.7	2.7	3.8	5.1	5.8	4.9	4.2	2.3	2.7	3.2
20	4.6	4.2	3.0	3.0	3.7	3.5	4.3	6.4	6.5	5.6	6.3	4.9	5.9	6.2	4.6	3.6	3.3	3.7	4.6	5.7	5.2	3.9	3.2	3.4
21	2.7	1.9	2.2	4.0	2.6	3.8	5.0	3.3	1.1	2.4	2.0	3.5	2.6	4.3	5.2	5.6	6.4	6.4	5.7	4.3	4.8	3.4	1.9	2.6
22	3.7	0.5	1.9	1.7	2.3	4.5	4.6	4.9	4.4	4.7	4.8	5.0	4.7	5.0	6.4	7.2	7.1	7.0	6.1	6.1	7.0	6.8	6.7	5.6
23	5.9	5.8	5.8	5.7	5.6	5.9	4.2	5.1	5.6	5.6	5.2	5.0	5.1	5.7	6.1	6.8	7.3	5.8	5.4	3.9	3.2	4.3	4.0	3.3
24	2.8	1.8	2.6	1.0	1.1	1.9	3.9	5.2	6.5	6.4	7.0	7.0	6.2	5.6	5.1	4.9	5.6	5.4	4.6	4.9	5.6	4.6	4.6	5.0
25	3.7	4.2	5.0	5.4	4.5	1.1	0.9	0.5	1.4	1.8	2.9	4.3	2.8	4.1	4.7	4.8	4.8	5.6	5.7	5.8	6.0	5.9	5.4	4.8
26	4.4	4.0	3.5	3.6	3.5	2.5	2.3	1.7	2.6	5.1	4.3	2.7	2.3	3.0	3.9	4.3	4.7	4.4	5.0	5.3	5.5	5.1	5.4	3.8
27	5.8	5.6	5.2	5.4	1.6	0.2	0.4	1.1	1.8	1.7	1.5	2.6	3.1	3.2	3.6	2.9	3.0	4.5	4.0	3.6	2.3	0.7	0.2	0.6
28	0.6	0.1	0.3	1.8	2.5	3.1	4.0	4.8	5.3	4.0	3.5	3.7	4.0	5.0	4.2	3.9	4.2	4.1	4.3	5.1	5.0	4.6	5.8	6.0
29	5.1	3.8	3.8	4.2	3.5	3.4	3.0	3.0	5.6	5.0	5.8	5.3	5.1	6.2	6.0	5.7	4.9	5.9	5.0	4.9	4.9	5.1	1.7	1.3
30	0.9	0.3	2.7	3.1	3.0	2.4	3.9	4.0	4.9	3.8	3.7	4.4	4.4	3.8	5.3	4.7	5.5	5.6	4.9	3.1	2.6	2.6	0.1	1.7
31	0.4	0.8	0.8	0.1	1.5	0.9	1.4	3.5	4.1	4.4	5.8	3.9	3.5	5.1	5.7	5.4	4.3	4.9	5.2	4.1	3.7	3.9	3.8	5.3

Table 3-2. Wind Speed Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM Sigθ1 (deg) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	97.6	82.5	76.2	35.1	44.9	35.6	28.7	20.1	22.5	47.1	70.6	69.0	59.3	78.3	77.2	77.8	73.6	54.5	50.1	56.4	61.9	30.1	23.1	61.5
2	42.7	58.8	109.4	75.2	52.6	62.4	34.8	25.4	26.5	40.8	68.0	67.9	80.0	80.1	75.4	77.2	69.7	53.9	69.1	58.3	72.5	61.4	48.2	16.4
3	25.4	26.0	19.6	18.6	19.8	19.8	19.2	18.8	33.5	24.8	39.3	49.2	38.2	36.7	32.4	25.9	23.1	26.9	19.8	16.6	17.6	18.7	19.7	18.5
4	18.3	17.6	17.6	16.0	15.2	15.8	16.0	18.1	21.4	26.4	26.8	33.1	28.7	34.2	28.1	28.2	29.6	24.0	21.8	19.9	17.9	17.2	16.3	17.0
5	17.6	17.2	17.0	20.4	20.4	18.2	26.3	32.2	20.2	20.3	25.1	26.2	27.3	32.0	32.2	26.4	24.7	22.0	22.5	21.8	21.4	21.0	25.3	29.2
6	26.9	27.5	24.3	21.3	20.8	19.0	21.2	20.8	28.1	48.9	50.9	59.1	51.1	53.7	53.6	45.7	46.5	35.0	26.8	22.5	20.7	21.3	18.7	17.0
7	21.9	30.1	26.4	20.3	22.0	24.3	30.4	19.0	20.2	20.1	23.1	50.1	66.4	57.0	60.9	59.8	56.7	48.4	47.9	34.1	30.2	26.4	27.9	36.8
8	44.5	46.2	49.5	85.1	60.9	52.3	22.1	20.2	22.6	19.8	28.1	21.2	19.6	20.4	23.6	23.8	24.1	17.2	17.1	18.7	16.5	17.4	24.6	17.1
9	18.6	18.1	16.3	25.8	26.3	65.8	20.7	16.6	22.1	25.4	39.6	63.5	69.7	72.0	85.6	74.3	56.1	61.1	54.9	72.5	33.3	22.4	75.2	65.3
10	69.3	62.7	84.1	57.3	55.8	70.1	90.6	58.7	30.2	40.6	56.9	73.5	73.7	79.0	55.5	63.1	65.5	56.1	59.3	68.5	86.8	97.6	97.6	97.6
11	104.8	123.0	97.6	77.6	69.7	111.3	52.2	17.6	40.7	58.7	75.3	66.5	60.2	48.2	46.6	46.6	39.1	30.3	23.1	23.2	19.0	19.2	16.8	18.3
12	16.3	14.8	14.4	16.3	16.3	20.9	20.5	17.7	22.4	41.0	57.6	49.3	60.2	56.4	42.3	44.8	35.7	31.5	26.2	19.7	15.7	15.7	16.6	20.1
13	27.8	29.7	29.0	45.6	46.8	74.8	64.3	31.3	22.6	34.6	28.1	65.9	67.3	57.0	52.0	56.0	53.2	63.0	59.7	87.1	97.6	111.5	97.6	96.0
14	47.7	56.1	52.6	47.2	41.9	67.6	23.6	21.9	22.7	60.6	74.3	72.3	79.2	58.8	65.8	77.6	69.5	63.6	53.4	64.7	63.3	47.7	35.2	24.8
15	21.4	16.4	15.8	16.4	19.8	24.8	30.2	24.8	25.2	27.9	31.9	37.5	35.0	38.6	38.9	32.4	32.2	28.1	29.2	20.4	15.8	14.6	15.0	16.0
16	19.7	17.9	20.9	23.2	24.3	21.3	28.4	22.3	21.3	29.1	32.8	48.5	55.5	47.7	45.1	41.7	48.5	33.7	38.6	19.2	15.3	17.9	27.9	34.0
17	19.9	19.1	25.7	19.3	28.5	26.5	20.2	17.6	17.5	24.3	26.0	31.3	51.0	24.1	20.9	32.2	25.9	27.1	15.8	17.1	19.0	16.4	15.9	18.0
18	19.3	18.5	19.0	19.4	19.0	19.4	29.1	19.6	18.5	18.2	32.4	52.9	54.7	54.5	50.0	44.8	39.3	34.1	49.0	31.5	32.6	22.4	39.6	26.3
19	28.9	18.2	15.7	16.5	16.9	16.1	16.0	16.3	19.8	21.0	19.6	27.4	27.6	25.4	32.2	54.2	45.6	26.3	24.2	17.4	22.0	22.7	30.2	20.2
20	19.9	18.8	23.8	18.7	17.0	22.3	17.7	16.9	20.4	27.5	34.6	46.1	39.5	38.4	50.9	63.3	58.7	51.0	36.6	16.5	18.8	22.6	40.2	40.6
21	52.3	61.8	29.6	29.8	46.1	28.9	19.6	46.2	79.2	67.0	71.2	61.1	69.1	50.3	43.8	38.6	34.4	33.0	29.8	28.7	29.3	37.1	52.5	40.7
22	26.7	28.1	21.4	25.1	19.4	20.3	21.0	21.3	22.5	29.8	41.8	43.0	45.6	43.8	34.4	29.8	24.2	25.2	20.7	16.0	15.7	16.6	14.6	15.0
23	15.3	17.4	15.4	15.2	18.2	17.4	20.9	18.5	19.6	18.1	29.2	33.9	27.5	18.6	20.3	20.5	19.1	18.8	19.6	21.5	28.0	16.8	18.3	21.8
24	19.4	24.0	19.9	75.3	42.2	30.4	18.5	25.8	28.2	32.2	29.6	30.6	37.7	42.3	50.5	46.6	36.8	36.4	25.9	18.6	17.2	17.6	17.1	16.3
25	19.4	17.7	16.0	17.4	21.3	69.9	73.7	85.5	77.0	69.8	58.9	48.4	68.2	47.7	41.2	38.6	38.5	30.4	23.2	20.4	17.4	17.2	16.9	17.7
26	15.8	16.9	17.2	18.5	17.2	26.9	35.5	45.5	24.2	35.9	42.7	69.2	75.9	67.0	57.0	47.8	46.3	41.9	32.8	31.5	24.1	22.3	30.4	32.6
27	23.2	25.9	21.6	18.0	44.4	67.0	69.9	54.8	70.8	77.4	79.7	64.9	61.0	59.4	55.8	65.3	60.3	40.1	36.3	30.3	29.8	59.7	44.0	31.7
28	30.6	44.8	56.0	18.1	15.4	16.8	14.9	21.2	27.6	46.1	51.4	57.7	57.1	41.1	47.8	54.4	41.0	38.4	33.7	28.2	23.8	18.5	16.9	20.2
29	25.9	27.9	23.2	20.2	20.1	18.6	44.4	21.2	18.0	38.0	42.2	48.1	48.5	42.7	41.0	36.9	41.0	20.1	38.9	25.4	21.4	35.2	59.5	51.5
30	59.8	34.0	18.7	34.5	42.2	19.4	18.0	24.3	23.0	45.5	52.9	50.1	55.9	59.8	41.0	46.5	36.7	31.2	27.1	23.7	16.4	25.3	62.9	35.9
31	68.5	32.5	17.9	30.2	35.3	20.1	27.4	19.7	33.3	31.7	25.2	50.1	62.2	45.4	42.2	42.2	46.1	35.6	30.8	34.8	21.8	15.0	16.9	16.1

Table 3-3. Sigma Theta Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM TEMP (DEG F) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	65.0	65.3	65.1	64.3	63.5	63.1	64.5	69.7	70.9	72.9	75.1	75.2	76.0	74.1	75.5	74.7	73.1	72.1	69.0	67.0	66.7	66.4	65.7	65.2
2	65.2	64.9	64.8	64.9	63.4	63.1	64.5	68.9	70.6	72.4	74.8	76.2	77.1	77.2	75.8	73.7	73.5	70.7	68.8	67.6	67.4	67.0	66.7	66.6
3	65.7	65.2	65.1	64.9	64.0	63.7	65.0	69.4	72.4	72.4	75.2	76.0	74.7	74.6	72.5	67.3	67.3	65.7	64.6	63.9	63.2	63.2	63.6	63.3
4	62.6	61.7	60.8	61.0	61.2	61.1	61.8	65.5	68.1	70.3	71.5	71.9	72.4	72.5	71.6	71.7	70.4	68.3	66.6	64.9	64.4	64.0	63.6	62.7
5	62.8	62.0	62.0	62.5	62.3	61.8	62.5	63.1	63.5	66.0	69.1	70.9	72.1	72.1	71.4	71.1	67.9	65.9	65.5	65.0	64.9	64.9	65.5	66.0
6	65.8	65.7	65.2	64.9	64.6	64.4	64.6	65.7	67.6	71.0	73.3	74.4	72.6	73.0	73.1	72.5	71.9	69.5	68.3	66.8	65.8	65.0	64.8	64.6
7	64.6	63.6	63.4	62.9	62.7	62.9	64.4	66.7	68.0	69.2	71.4	73.9	75.2	74.8	74.1	72.0	71.4	70.1	68.0	66.4	66.1	65.9	65.8	65.6
8	65.2	65.6	65.5	64.8	64.4	64.6	64.7	65.1	65.7	67.2	67.3	67.9	68.5	68.5	67.8	66.6	65.8	65.3	64.9	64.6	64.2	64.2	64.1	63.9
9	63.5	63.9	63.8	63.2	63.1	62.8	62.8	64.0	66.0	68.6	72.5	75.6	74.5	75.1	74.8	73.0	71.9	71.1	67.1	66.1	65.8	64.8	64.0	64.0
10	63.9	63.7	63.6	63.3	62.7	62.7	64.0	65.6	68.4	72.6	74.6	74.7	72.1	74.0	69.7	70.9	70.3	69.1	68.0	67.6	66.7	65.9	66.1	66.0
11	65.7	65.0	65.6	65.7	64.9	64.5	67.5	69.1	71.6	70.6	73.7	74.2	73.4	72.3	73.3	73.1	73.8	72.0	67.9	66.7	66.0	65.6	65.1	64.9
12	64.6	64.1	63.6	63.4	63.1	62.2	64.0	68.7	68.9	71.5	75.0	75.1	75.3	75.0	74.8	73.2	74.2	73.8	69.2	66.0	64.8	63.9	63.3	63.0
13	62.2	61.9	62.4	62.3	62.2	62.2	61.7	64.5	69.1	72.0	71.5	74.8	76.1	76.5	75.1	74.2	73.5	71.8	68.8	66.7	65.2	64.9	64.3	63.6
14	63.1	62.9	63.5	63.1	62.8	62.9	64.7	67.8	70.3	72.9	74.0	75.2	74.2	72.2	71.0	69.6	68.4	68.1	67.6	67.2	66.9	66.5	65.9	65.3
15	64.8	64.0	63.6	63.7	63.7	63.4	63.5	67.2	69.1	70.3	73.0	74.1	74.0	74.5	74.1	73.4	71.4	69.5	68.4	66.7	65.1	64.2	63.7	63.1
16	62.5	62.2	62.1	61.8	61.4	61.3	61.8	66.1	69.9	71.5	73.3	74.8	75.3	74.8	73.5	73.5	71.9	70.0	67.9	66.7	65.8	65.4	64.8	64.7
17	64.1	64.0	64.1	64.0	64.0	64.2	64.6	67.6	69.9	69.6	70.1	71.2	70.9	69.4	69.9	70.3	68.7	67.4	66.3	65.6	64.9	64.5	64.7	64.7
18	64.3	64.5	64.7	64.0	64.1	64.0	63.9	65.6	66.6	66.7	70.7	72.5	71.7	74.1	73.3	70.9	69.2	68.3	66.8	66.2	65.8	65.8	65.5	65.3
19	64.5	64.4	63.8	63.4	63.2	63.4	63.8	65.8	68.9	69.4	70.2	70.7	68.8	69.0	68.8	69.4	66.9	67.5	66.9	65.8	65.8	65.9	65.9	65.7
20	65.2	65.1	65.3	65.0	64.5	64.4	64.9	66.1	67.6	69.0	71.0	71.9	72.9	73.2	72.3	72.0	70.8	69.6	67.6	65.8	65.8	66.6	66.7	66.4
21	66.7	66.6	66.4	66.6	65.9	66.0	65.8	66.8	68.6	70.5	70.4	71.2	72.9	74.2	72.4	72.1	70.7	69.4	68.3	67.5	67.5	67.1	67.4	67.3
22	66.9	66.5	66.1	66.1	65.9	65.8	66.0	67.0	67.7	69.7	71.9	73.0	73.5	72.9	72.4	70.5	69.7	68.5	67.5	65.7	65.5	64.9	64.9	64.0
23	64.5	63.7	63.5	63.6	64.1	63.1	62.2	63.2	64.1	65.7	66.1	65.1	65.6	66.7	68.3	68.5	68.9	66.5	65.3	64.9	64.9	65.2	65.0	65.1
24	65.1	65.4	65.6	65.6	65.8	66.0	66.5	68.4	70.3	71.7	72.3	73.5	74.3	74.8	76.2	75.7	73.2	72.4	68.7	67.6	67.7	67.5	67.1	66.5
25	66.0	66.1	65.9	65.5	65.3	66.5	66.8	67.0	68.6	68.9	70.1	71.4	70.6	71.1	70.8	68.9	67.7	67.6	66.9	66.0	65.2	65.0	64.9	64.8
26	64.4	63.8	64.1	64.5	64.2	64.3	64.7	66.4	68.5	71.2	71.8	73.8	75.8	75.7	73.4	73.0	71.2	69.5	68.6	67.7	67.0	66.8	66.7	66.1
27	67.1	66.8	65.5	65.1	65.2	65.4	66.2	68.4	70.6	70.6	73.0	74.7	74.6	75.4	74.4	74.5	73.0	72.1	69.4	68.2	67.6	67.5	67.1	67.2
28	67.2	67.0	66.9	66.7	66.2	65.8	67.7	70.7	71.6	73.2	74.0	75.7	75.7	76.3	75.8	76.1	75.1	72.3	69.3	68.5	68.0	67.0	66.7	67.0
29	66.3	65.9	65.6	65.6	65.2	65.2	65.4	66.1	69.6	72.1	73.9	74.9	76.2	75.6	75.3	73.9	70.2	68.8	68.4	66.3	66.4	67.1	67.6	66.7
30	66.9	66.7	66.8	66.8	66.8	66.7	67.0	68.0	68.5	70.8	71.7	73.7	75.1	74.1	73.8	73.3	72.5	71.5	69.8	68.3	67.4	67.5	67.3	67.0
31	66.8	66.7	66.7	66.7	66.7	66.8	67.2	69.6	72.4	70.9	73.0	76.5	77.4	76.8	76.0	75.7	73.5	71.7	70.3	69.2	68.5	67.6	67.8	67.3

Table 3-4. Ambient Temperature Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM RAIN (INCH) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.02	0.12	0.07
2	0.04	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.12	0.05	0.02	0.00	0.06	0.22	0.02
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.01	0.00	0.08	0.06	0.05	0.02	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.07	0.00	0.01	0.00	0.00
6	0.00	0.00	0.00	0.00	0.02	0.00	0.08	0.04	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
7	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.01	0.00	0.00	0.02	0.03	0.01	0.02	0.04	0.01	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
9	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.04	0.02	0.02	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00
15	0.03	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.01
17	0.00	0.01	0.00	0.02	0.04	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.06	0.02	0.00	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.03	0.06	0.00	0.08	0.02	0.00	0.00	0.06	0.00	0.00	0.14	0.01	0.01	0.01	0.00	0.00
19	0.09	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.03	0.27	0.02	0.19	0.01	0.03	0.07	0.02	0.09	0.03	0.02
20	0.07	0.05	0.00	0.07	0.02	0.09	0.07	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.01	0.02
21	0.01	0.09	0.02	0.05	0.05	0.03	0.11	0.04	0.06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.05	0.10	0.20	0.18	0.20	0.10	0.02	0.01	0.00	0.00	0.01	0.01	0.11	0.09	0.00	0.01	0.03
24	0.01	0.00	0.03	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00
25	0.07	0.17	0.00	0.08	0.18	0.05	0.11	0.05	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
26	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03
27	0.00	0.03	0.10	0.16	0.08	0.15	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
29	0.04	0.06	0.03	0.01	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.21	0.11	0.02	0.04
30	0.01	0.00	0.05	0.01	0.11	0.04	0.03	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
31	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 3-5. Precipitation Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM SO2 (PPB) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	----	----	----	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	1	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	----	----	----	----	----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3-6. Sulfur Dioxide Monthly Summary Site 1

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 1, AQM H2S (PPB) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	----	----	----	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	----	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	----	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3-7. Hydrogen Sulfide Monthly Summary Site 1

HECO ENVIRONMENTAL LABORATORY
ENVIRONMENTAL DEPARTMENT
Rainwater Analysis Report

Report Date: June 19, 1990

Site: True/Geothermal
Pahoa, Hawaii

Sample Date: 05/01/90 - 05/31/90
(Received 06/06/90)

Parameter	Conc. (ug/l) True (1-3)-10
pH	4.40
Aluminum	<10.0
Arsenic	<5.0
Barium	<20.0
Cadmium	<1.0
Chromium	<4.0
Copper	<10.0
Iron	<10.0
Lead	<5.0
Magnesium	390
Manganese	<2.0
Mercury	<0.50
Selenium	<5.0
Silver	<2.0
Sodium	3,120
Zinc	<10.0
Bromide	<50
Chloride	5,250
Fluoride	60
Phosphate	<61
Nitrite	<4
Nitrate	<13
Sulfate	1,330
Sulfite	<150

Analyzed by: CK DK
C. Kishimoto/G. Kitsuwa

Approved by: Charles Kishimoto
for George Yasutome
Senior Chemist

Table 3-8. Rain Water Analyses Monthly Summary Site 1
05/01/90-05/31/90

295/01-007 PROTOCOL: 5 SA

SAMPLE ID: MZ166
PARTICLE SIZE: C
ANALYSIS ID: MZ166
05/05/90
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 32.+- 10. MICROGRAMS

ELEMENT	UG/CM2	UG/FILTER	PERCENT
AL	.0000+- .0043	.000+- .055	.0000+- .1720
SI	.0321+- .0050	.411+- .064	1.2840+- .4483
P	.0000+- .0016	.000+- .020	.0000+- .0640
S	.0493+- .0110	.631+- .141	1.9720+- .7572
CL	.3431+- .0399	4.392+- .511	13.7240+- 4.5761
K	.0124+- .0028	.159+- .036	.4960+- .1912
CA	.0165+- .0025	.211+- .032	.6600+- .2292
TI	.0000+- .0007	.000+- .009	.0000+- .0280
V	.0004+- .0006	.005+- .008	.0160+- .0245
CR	.0004+- .0005	.005+- .006	.0160+- .0206
MN	.0000+- .0006	.000+- .008	.0000+- .0240
FE	.0183+- .0016	.234+- .020	.7320+- .2375
NI	.0025+- .0005	.032+- .006	.1000+- .0371
CU	.0007+- .0005	.009+- .006	.0280+- .0218
ZN	.0000+- .0004	.000+- .005	.0000+- .0160
GA	.0000+- .0004	.000+- .005	.0000+- .0160
AS	.0000+- .0013	.000+- .017	.0000+- .0520
SE	.0000+- .0006	.000+- .008	.0000+- .0240
BR	.0000+- .0006	.000+- .008	.0000+- .0240
RB	.0000+- .0009	.000+- .012	.0000+- .0360
SR	.0001+- .0010	.001+- .013	.0040+- .0400
Y	.0013+- .0011	.017+- .014	.0520+- .0469
ZR	.0002+- .0027	.003+- .035	.0080+- .1080
MO	.0000+- .0044	.000+- .056	.0000+- .1760
PD	.0000+- .0040	.000+- .051	.0000+- .1600
AG	.0000+- .0053	.000+- .068	.0000+- .2120
CD	.0068+- .0070	.087+- .090	.2720+- .2926
IN	.0040+- .0087	.051+- .111	.1600+- .3516
SN	.0073+- .0105	.093+- .134	.2920+- .4298
SB	.0010+- .0140	.013+- .179	.0400+- .5601
BA	.0021+- .0633	.027+- .810	.0840+- 2.5321
LA	.0000+- .1061	.000+- 1.358	.0000+- 4.2440
HG	.0000+- .0008	.000+- .010	.0000+- .0320
PB	.0000+- .0024	.000+- .031	.0000+- .0960

Table 3-9. Metals Filter Analyses May 5, 1990 Site 1

295/01-007 PROTOCOL: 5 SA

SAMPLE ID: MZ167
PARTICLE SIZE: C
ANALYSIS ID: MZ167
05/11/90
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 28.+- 10. MICROGRAMS

ELEMENT	UG/CM2	UG/FILTER	PERCENT
AL	.0000+- .0043	.000+- .055	.0000+- .1966
SI	.0271+- .0045	.347+- .058	1.2389+- .4879
P	.0000+- .0016	.000+- .020	.0000+- .0731
S	.0514+- .0111	.658+- .142	2.3497+- .9807
CL	.2595+- .0305	3.322+- .390	11.8629+- 4.4603
K	.0118+- .0026	.151+- .033	.5394+- .2264
CA	.0103+- .0019	.132+- .024	.4709+- .1893
TI	.0000+- .0008	.000+- .010	.0000+- .0366
V	.0000+- .0006	.000+- .008	.0000+- .0274
CR	.0015+- .0006	.019+- .008	.0686+- .0368
MN	.0006+- .0006	.008+- .008	.0274+- .0291
FE	.0188+- .0016	.241+- .020	.8594+- .3155
NI	.0020+- .0006	.026+- .008	.0914+- .0426
CU	.0044+- .0006	.056+- .008	.2011+- .0769
ZN	.0006+- .0004	.008+- .005	.0274+- .0207
GA	.0000+- .0004	.000+- .005	.0000+- .0183
AS	.0000+- .0013	.000+- .017	.0000+- .0594
SE	.0000+- .0005	.000+- .006	.0000+- .0229
BR	.0007+- .0006	.009+- .008	.0320+- .0297
RB	.0000+- .0009	.000+- .012	.0000+- .0411
SR	.0000+- .0010	.000+- .013	.0000+- .0457
Y	.0000+- .0011	.000+- .014	.0000+- .0503
ZR	.0014+- .0026	.018+- .033	.0640+- .1210
MO	.0088+- .0044	.113+- .056	.4023+- .2472
PD	.0026+- .0038	.033+- .049	.1189+- .1788
AG	.0000+- .0053	.000+- .068	.0000+- .2423
CD	.0084+- .0065	.108+- .083	.3840+- .3273
IN	.0000+- .0082	.000+- .105	.0000+- .3749
SN	.0000+- .0100	.000+- .128	.0000+- .4571
SB	.0000+- .0137	.000+- .175	.0000+- .6263
BA	.1084+- .0636	1.388+- .814	4.9554+- 3.4037
LA	.0899+- .1062	1.151+- 1.359	4.1097+- 5.0719
HG	.0000+- .0008	.000+- .010	.0000+- .0366
PB	.0036+- .0023	.046+- .029	.1646+- .1205

Table 3-10. Metals Filter Analyses May 11, 1990 Site 1

295/01-007 PROTOCOL: 5 SA

SAMPLE ID: MZ168
PARTICLE SIZE: C
ANALYSIS ID: MZ168
05/17/90
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 29.+- 10. MICROGRAMS

ELEMENT	UG/CM2		UG/FILTER		PERCENT	
AL	.0000+-	.0044	.000+-	.056	.0000+-	.1942
SI	.0110+-	.0030	.141+-	.038	.4855+-	.2135
P	.0000+-	.0016	.000+-	.020	.0000+-	.0706
S	.0226+-	.0094	.289+-	.120	.9975+-	.5389
CL	.2929+-	.0342	3.749+-	.438	12.9280+-	4.7066
K	.0093+-	.0024	.119+-	.031	.4105+-	.1768
CA	.0063+-	.0016	.081+-	.020	.2781+-	.1191
TI	.0000+-	.0007	.000+-	.009	.0000+-	.0309
V	.0000+-	.0005	.000+-	.006	.0000+-	.0221
CR	.0006+-	.0006	.008+-	.008	.0265+-	.0280
MN	.0000+-	.0006	.000+-	.008	.0000+-	.0265
FE	.0165+-	.0015	.211+-	.019	.7283+-	.2597
NI	.0011+-	.0006	.014+-	.008	.0486+-	.0313
CU	.0020+-	.0006	.026+-	.008	.0883+-	.0403
ZN	.0000+-	.0004	.000+-	.005	.0000+-	.0177
GA	.0000+-	.0004	.000+-	.005	.0000+-	.0177
AS	.0000+-	.0013	.000+-	.017	.0000+-	.0574
SE	.0002+-	.0005	.003+-	.006	.0088+-	.0223
BR	.0013+-	.0006	.017+-	.008	.0574+-	.0331
RB	.0000+-	.0009	.000+-	.012	.0000+-	.0397
SR	.0000+-	.0010	.000+-	.013	.0000+-	.0441
Y	.0000+-	.0011	.000+-	.014	.0000+-	.0486
ZR	.0000+-	.0026	.000+-	.033	.0000+-	.1148
MO	.0019+-	.0044	.024+-	.056	.0839+-	.1963
PD	.0000+-	.0038	.000+-	.049	.0000+-	.1677
AG	.0000+-	.0055	.000+-	.070	.0000+-	.2428
CD	.0000+-	.0068	.000+-	.087	.0000+-	.3001
IN	.0010+-	.0087	.013+-	.111	.0441+-	.3843
SN	.0000+-	.0103	.000+-	.132	.0000+-	.4546
SB	.0239+-	.0134	.306+-	.172	1.0549+-	.6944
BA	.0000+-	.0626	.000+-	.801	.0000+-	2.7630
LA	.0000+-	.1050	.000+-	1.344	.0000+-	4.6345
HG	.0000+-	.0009	.000+-	.012	.0000+-	.0397
PB	.0000+-	.0023	.000+-	.029	.0000+-	.1015

Table 3-11. Metals Filter Analyses May 17, 1990 Site 1

295/01-007 PROTOCOL: 5 SA

SAMPLE ID: M1605
PARTICLE SIZE: C
ANALYSIS ID: M1605
05/29/90
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 0.+- 10. MICROGRAMS

ELEMENT	UG/CM2		UG/FILTER	
AL	.0043+-	.0040	.055+-	.051
SI	.0255+-	.0042	.326+-	.054
P	.0000+-	.0015	.000+-	.019
S	.0316+-	.0086	.404+-	.110
CL	.1084+-	.0138	1.388+-	.177
K	.0076+-	.0021	.097+-	.027
CA	.0069+-	.0016	.088+-	.020
TI	.0005+-	.0007	.006+-	.009
V	.0000+-	.0005	.000+-	.006
CR	.0012+-	.0005	.015+-	.006
MN	.0000+-	.0006	.000+-	.008
FE	.0213+-	.0017	.273+-	.022
NI	.0020+-	.0006	.026+-	.008
CU	.0014+-	.0005	.018+-	.006
ZN	.0012+-	.0004	.015+-	.005
GA	.0001+-	.0003	.001+-	.004
AS	.0000+-	.0013	.000+-	.017
SE	.0000+-	.0005	.000+-	.006
BR	.0009+-	.0006	.012+-	.008
RB	.0000+-	.0008	.000+-	.010
SR	.0000+-	.0009	.000+-	.012
Y	.0000+-	.0011	.000+-	.014
ZR	.0007+-	.0025	.009+-	.032
MO	.0033+-	.0042	.042+-	.054
PD	.0020+-	.0036	.026+-	.046
AG	.0013+-	.0051	.017+-	.065
CD	.0000+-	.0061	.000+-	.078
IN	.0000+-	.0079	.000+-	.101
SN	.0000+-	.0093	.000+-	.119
SB	.0000+-	.0125	.000+-	.160
BA	.0000+-	.0580	.000+-	.742
LA	.1079+-	.0991	1.381+-	1.268
HG	.0003+-	.0007	.004+-	.009
PB	.0000+-	.0022	.000+-	.028

Table 3-12. Metals Filter Analyses May 29, 1990 Site 1

295/01-008 PROTOCOL: 5 SA

SAMPLE ID: QZ167
PARTICLE SIZE: C
ANALYSIS ID: QZ167
Replicate
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 28.+- 10. MICROGRAMS

ELEMENT	UG/CM2		UG/FILTER		PERCENT	
AL	.0001+-	.0043	.001+-	.055	.0046+-	.1966
SI	.0251+-	.0042	.321+-	.054	1.1474+-	.4525
P	.0000+-	.0017	.000+-	.022	.0000+-	.0777
S	.0403+-	.0101	.516+-	.129	1.8423+-	.8038
CL	.2468+-	.0291	3.159+-	.372	11.2823+-	4.2433
K	.0148+-	.0028	.189+-	.036	.6766+-	.2734
CA	.0095+-	.0019	.122+-	.024	.4343+-	.1778
TI	.0001+-	.0007	.001+-	.009	.0046+-	.0320
V	.0004+-	.0005	.005+-	.006	.0183+-	.0238
CR	.0009+-	.0006	.012+-	.008	.0411+-	.0311
MN	.0000+-	.0006	.000+-	.008	.0000+-	.0274
FE	.0166+-	.0016	.212+-	.020	.7589+-	.2807
NI	.0008+-	.0006	.010+-	.008	.0366+-	.0304
CU	.0040+-	.0006	.051+-	.008	.1829+-	.0708
ZN	.0000+-	.0004	.000+-	.005	.0000+-	.0183
GA	.0000+-	.0004	.000+-	.005	.0000+-	.0183
AS	.0000+-	.0013	.000+-	.017	.0000+-	.0594
SE	.0000+-	.0006	.000+-	.008	.0000+-	.0274
BR	.0011+-	.0006	.014+-	.008	.0503+-	.0328
RB	.0000+-	.0009	.000+-	.012	.0000+-	.0411
SR	.0019+-	.0010	.024+-	.013	.0869+-	.0552
Y	.0000+-	.0011	.000+-	.014	.0000+-	.0503
ZR	.0015+-	.0027	.019+-	.035	.0686+-	.1258
MO	.0000+-	.0044	.000+-	.056	.0000+-	.2011
PD	.0000+-	.0040	.000+-	.051	.0000+-	.1829
AG	.0053+-	.0051	.068+-	.065	.2423+-	.2487
CD	.0000+-	.0068	.000+-	.087	.0000+-	.3109
IN	.0047+-	.0084	.060+-	.108	.2149+-	.3916
SN	.0000+-	.0101	.000+-	.129	.0000+-	.4617
SB	.0201+-	.0134	.257+-	.172	.9189+-	.6949
BA	.0247+-	.0623	.316+-	.797	1.1291+-	2.8764
LA	.0000+-	.1061	.000+-	1.358	.0000+-	4.8503
HG	.0008+-	.0008	.010+-	.010	.0366+-	.0388
PB	.0026+-	.0023	.033+-	.029	.1189+-	.1134

Table 3-13. Metals Filter Replicate Analyses

REPLICATE REPORT
295/01
PROTOCOL: 5 SA

SAMPLE ID: MZ167
PARTICLE SIZE: C
ORIGINAL ID: MZ167
REPLICATE ID: QZ167
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 0.+- 0. MICROGRAMS

ELEMENT	ORIGINAL UG/CM2	REPLICATE UG/CM2	CHANGE IN UG/CM2	PERCENT ERROR
AL	.0000+- .0043	.0001+- .0043	.0001+- .0061	
SI	.0271+- .0045	.0251+- .0042	-.0020+- .0062	-7.4+- 22.7
P	.0000+- .0016	.0000+- .0017	.0000+- .0023	
S	.0514+- .0111	.0403+- .0101	-.0111+- .0150	-21.6+- 29.2
CL	.2595+- .0305	.2468+- .0291	-.0127+- .0422	-4.9+- 16.2
K	.0118+- .0026	.0148+- .0028	.0030+- .0038	25.4+- 32.4
CA	.0103+- .0019	.0095+- .0019	-.0008+- .0027	-7.8+- 26.1
TI	.0000+- .0008	.0001+- .0007	.0001+- .0011	
V	.0000+- .0006	.0004+- .0005	.0004+- .0008	
CR	.0015+- .0006	.0009+- .0006	-.0006+- .0008	-40.0+- 56.6
MN	.0006+- .0006	.0000+- .0006	-.0006+- .0008	
FE	.0188+- .0016	.0166+- .0016	-.0022+- .0023	-11.7+- 12.0
NI	.0020+- .0006	.0008+- .0006	-.0012+- .0008	-60.0+- 42.4
CU	.0044+- .0006	.0040+- .0006	-.0004+- .0008	-9.1+- 19.3
ZN	.0006+- .0004	.0000+- .0004	-.0006+- .0006	
GA	.0000+- .0004	.0000+- .0004	.0000+- .0006	
AS	.0000+- .0013	.0000+- .0013	.0000+- .0018	
SE	.0000+- .0005	.0000+- .0006	.0000+- .0008	
BR	.0007+- .0006	.0011+- .0006	.0004+- .0008	
RB	.0000+- .0009	.0000+- .0009	.0000+- .0013	
SR	.0000+- .0010	.0019+- .0010	.0019+- .0014	
Y	.0000+- .0011	.0000+- .0011	.0000+- .0016	
ZR	.0014+- .0026	.0015+- .0027	.0001+- .0037	
MO	.0088+- .0044	.0000+- .0044	-.0088+- .0062	
PD	.0026+- .0038	.0000+- .0040	-.0026+- .0055	
AG	.0000+- .0053	.0053+- .0051	.0053+- .0074	
CD	.0084+- .0065	.0000+- .0068	-.0084+- .0094	
IN	.0000+- .0082	.0047+- .0084	.0047+- .0117	
SN	.0000+- .0100	.0000+- .0101	.0000+- .0142	
SB	.0000+- .0137	.0201+- .0134	.0201+- .0192	
BA	.1084+- .0636	.0247+- .0623	-.0837+- .0890	
LA	.0899+- .1062	.0000+- .1061	-.0899+- .1501	
HG	.0000+- .0008	.0008+- .0008	.0008+- .0011	
PB	.0036+- .0023	.0026+- .0023	-.0010+- .0033	

Table 3-14. Metals Filter Replicate Analyses

295/01-008 PROTOCOL: 5 SA

SAMPLE ID: QZ163
PARTICLE SIZE: C
ANALYSIS ID: QZ163
Replicate
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 37.+- 10. MICROGRAMS

ELEMENT	UG/CM2	UG/FILTER	PERCENT
AL	.0000+- .0044	.000+- .056	.0000+- .1522
SI	.0333+- .0052	.426+- .067	1.1520+- .3596
P	.0000+- .0017	.000+- .022	.0000+- .0588
S	.0621+- .0117	.795+- .150	2.1483+- .7078
CL	.2469+- .0291	3.160+- .372	8.5414+- 2.5184
K	.0072+- .0022	.092+- .028	.2491+- .1016
CA	.0151+- .0024	.193+- .031	.5224+- .1638
TI	.0009+- .0008	.012+- .010	.0311+- .0289
V	.0000+- .0006	.000+- .008	.0000+- .0208
CR	.0002+- .0006	.003+- .008	.0069+- .0208
MN	.0000+- .0007	.000+- .009	.0000+- .0242
FE	.0212+- .0018	.271+- .023	.7334+- .2078
NI	.0001+- .0006	.001+- .008	.0035+- .0208
CU	.0045+- .0006	.058+- .008	.1557+- .0469
ZN	.0019+- .0004	.024+- .005	.0657+- .0225
GA	.0000+- .0004	.000+- .005	.0000+- .0138
AS	.0000+- .0013	.000+- .017	.0000+- .0450
SE	.0001+- .0006	.001+- .008	.0035+- .0208
BR	.0009+- .0007	.012+- .009	.0311+- .0256
RB	.0001+- .0009	.001+- .012	.0035+- .0311
SR	.0000+- .0010	.000+- .013	.0000+- .0346
Y	.0000+- .0011	.000+- .014	.0000+- .0381
ZR	.0000+- .0028	.000+- .036	.0000+- .0969
MO	.0006+- .0045	.008+- .058	.0208+- .1558
PD	.0024+- .0042	.031+- .054	.0830+- .1470
AG	.0007+- .0055	.009+- .070	.0242+- .1904
CD	.0000+- .0068	.000+- .087	.0000+- .2352
IN	.0062+- .0089	.079+- .114	.2145+- .3133
SN	.0013+- .0105	.017+- .134	.0450+- .3634
SB	.0000+- .0138	.000+- .177	.0000+- .4774
BA	.0000+- .0644	.000+- .824	.0000+- 2.2279
LA	.1097+- .1081	1.404+- 1.384	3.7950+- 3.8778
HG	.0000+- .0009	.000+- .012	.0000+- .0311
PB	.0017+- .0024	.022+- .031	.0588+- .0845

Table 3-15. Metals Filter Replicate Analyses

REPLICATE REPORT
295/01
PROTOCOL: 5 SA

SAMPLE ID: MZ163
PARTICLE SIZE: C
ORIGINAL ID: MZ163
REPLICATE ID: QZ163
EXPOSED AREA: 12.80 SQUARE CM
MASS OF DEPOSIT: 0.+- 0. MICROGRAMS

ELEMENT	ORIGINAL UG/CM2	REPLICATE UG/CM2	CHANGE IN UG/CM2	PERCENT ERROR
AL	.0000+- .0046	.0000+- .0044	.0000+- .0064	
SI	.0298+- .0049	.0333+- .0052	.0035+- .0071	11.7+- 24.0
P	.0000+- .0018	.0000+- .0017	.0000+- .0025	
S	.0427+- .0106	.0621+- .0117	.0194+- .0158	45.4+- 37.0
CL	.2585+- .0305	.2469+- .0291	-.0116+- .0422	-4.5+- 16.3
K	.0117+- .0028	.0072+- .0022	-.0045+- .0036	-38.5+- 30.4
CA	.0149+- .0023	.0151+- .0024	.0002+- .0033	1.3+- 22.3
TI	.0044+- .0008	.0009+- .0008	-.0035+- .0011	-79.5+- 25.7
V	.0001+- .0006	.0000+- .0006	-.0001+- .0008	
CR	.0019+- .0006	.0002+- .0006	-.0017+- .0008	-89.5+- 44.7
MN	.0000+- .0006	.0000+- .0007	.0000+- .0009	
FE	.0250+- .0020	.0212+- .0018	-.0038+- .0027	-15.2+- 10.8
NI	.0009+- .0006	.0001+- .0006	-.0008+- .0008	
CU	.0039+- .0006	.0045+- .0006	.0006+- .0008	15.4+- 21.8
ZN	.0007+- .0004	.0019+- .0004	.0012+- .0006	171.4+- 80.8
GA	.0002+- .0004	.0000+- .0004	-.0002+- .0006	
AS	.0000+- .0014	.0000+- .0013	.0000+- .0019	
SE	.0000+- .0006	.0001+- .0006	.0001+- .0008	
BR	.0000+- .0007	.0009+- .0007	.0009+- .0010	
RB	.0000+- .0009	.0001+- .0009	.0001+- .0013	
SR	.0015+- .0011	.0000+- .0010	-.0015+- .0015	
Y	.0021+- .0012	.0000+- .0011	-.0021+- .0016	
ZR	.0020+- .0029	.0000+- .0028	-.0020+- .0040	
MO	.0000+- .0046	.0006+- .0045	.0006+- .0064	
PD	.0080+- .0040	.0024+- .0042	-.0056+- .0058	
AG	.0097+- .0056	.0007+- .0055	-.0090+- .0078	
CD	.0014+- .0072	.0000+- .0068	-.0014+- .0099	
IN	.0042+- .0092	.0062+- .0089	.0020+- .0128	
SN	.0000+- .0111	.0013+- .0105	.0013+- .0153	
SB	.0000+- .0143	.0000+- .0138	.0000+- .0199	
BA	.0000+- .0676	.0000+- .0644	.0000+- .0934	
LA	.0504+- .1098	.1097+- .1081	.0593+- .1541	
HG	.0011+- .0009	.0000+- .0009	-.0011+- .0013	
PB	.0036+- .0025	.0017+- .0024	-.0019+- .0035	

Table 3-16. Metals Filter Analyses

MEASUREMENT TECHNOLOGIES

8" X 10" FILTER GRAVIMETRIC REPORT

Run Day	NEA ID.	FILTER TYPE	TARE WT. GRAMS	GROSS WT. GRAMS	NET WT. MILLIGRAMS
05/05/90	MZ201	TSP	4.6478	4.6666	18.80
05/05/90	MZ202	PM-10	4.6704	4.6869	16.50
05/11/90	MZ203	TSP	4.6868	4.7043	17.50
05/11/90	MZ204	PM-10	4.6443	4.6619	17.60
05/17/90	MZ205	TSP	4.6600	4.6801	20.10
05/17/90	MZ206	PM-10	4.6491	4.6644	15.30
05/23/90	MZ207	TSP	4.6424	4.6542	11.80
05/23/90	MZ208	PM-10	4.6835	4.6940	10.50
05/29/90	MZ209	TSP	4.6751	4.6876	12.50
05/29/90	MZ210	PM-10	4.6688	4.6796	10.80

Table 3-17. Total Suspended Particulates (TSP) and Inhaleable Particulates (PM-10) Loading Monthly Summary Site 1

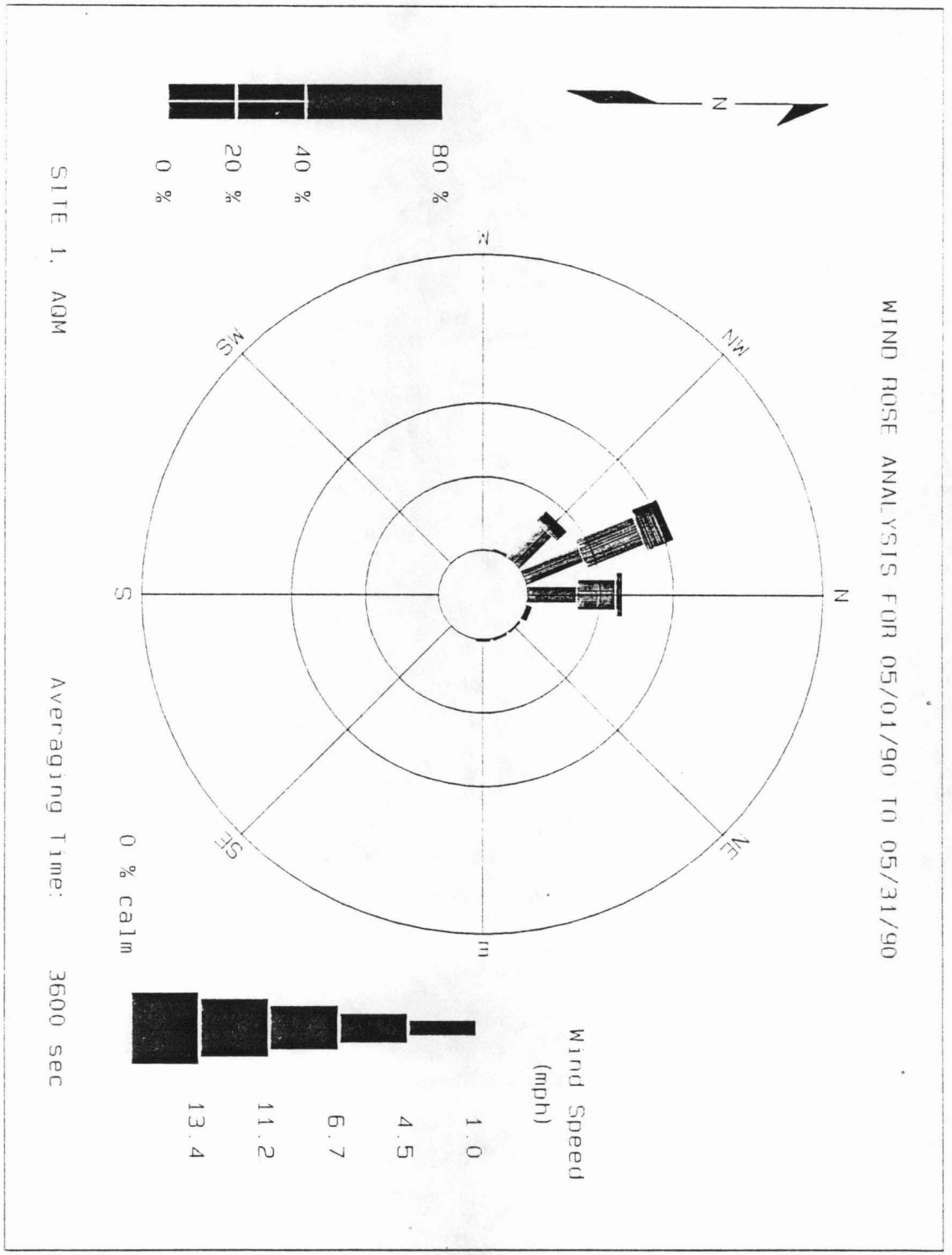

Figure 3-1. Wind Rose Analysis Site 1

WD (DEG) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	360.	05/12/90	10:00:00		
Second Highest:	360.	05/13/90	15:00:00		
Lowest Value:	0.	05/01/90	00:00:00		
Arithmetic Mean:	303.			10.000 Percentile:	112.
Standard Deviation:	95.			20.000 Percentile:	313.
				30.000 Percentile:	323.
Geometric Mean:	234.			40.000 Percentile:	332.
Standard Deviation:	3.			50.000 Percentile:	338.
				60.000 Percentile:	343.
Valid Data:	744			70.000 Percentile:	347.
Invalid Data:	0			80.000 Percentile:	349.
Missing Data:	0			90.000 Percentile:	352.
Data Recovery:	100.00%			100.000 Percentile:	360.

SITE 1, AQM Averaging Time: 3600 sec

Table 3-18. Wind Direction Summary Statistics Site 1

WS (MPH) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	11.8	05/03/90	21:00:00		
Second Highest:	10.8	05/03/90	20:00:00		
Lowest Value:	0.0	05/01/90	00:00:00		
Arithmetic Mean:	3.9			10.000 Percentile:	0.6
Standard Deviation:	2.3			20.000 Percentile:	1.8
				30.000 Percentile:	2.6
Geometric Mean:	2.9			40.000 Percentile:	3.4
Standard Deviation:	2.7			50.000 Percentile:	4.0
				60.000 Percentile:	4.5
Valid Data:	744			70.000 Percentile:	5.0
Invalid Data:	0			80.000 Percentile:	5.6
Missing Data:	0			90.000 Percentile:	6.7
Data Recovery:	100.00%			100.000 Percentile:	11.8

SITE 1, AQM Averaging Time: 3600 sec

Table 3-19. Wind Speed Summary Statistics Site 1

Sigé1 (deg) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	123.0	05/11/90	01:00:00		
Second Highest:	111.5	05/13/90	21:00:00		
Lowest Value:	14.4	05/12/90	02:00:00		
Arithmetic Mean:	37.0		10.000	Percentile:	17.2
Standard Deviation:	20.3		20.000	Percentile:	19.4
			30.000	Percentile:	21.4
Geometric Mean:	32.3		40.000	Percentile:	25.4
Standard Deviation:	1.7		50.000	Percentile:	29.8
			60.000	Percentile:	35.7
Valid Data:	744		70.000	Percentile:	45.6
Invalid Data:	0		80.000	Percentile:	55.5
Missing Data:	0		90.000	Percentile:	67.6
Data Recovery:	100.00%		100.000	Percentile:	123.0

SITE 1, AQM Averaging Time: 3600 sec

Table 3-20. Sigma Theta Summary Statistics Site 1

TEMP (DEG F) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	77.4	05/31/90	12:00:00		
Second Highest:	77.2	05/02/90	13:00:00		
Lowest Value:	60.8	05/04/90	02:00:00		
Arithmetic Mean:	68.0		10.000	Percentile:	63.6
Standard Deviation:	3.9		20.000	Percentile:	64.6
			30.000	Percentile:	65.4
Geometric Mean:	67.9		40.000	Percentile:	66.1
Standard Deviation:	1.1		50.000	Percentile:	67.0
			60.000	Percentile:	68.3
Valid Data:	744		70.000	Percentile:	70.2
Invalid Data:	0		80.000	Percentile:	72.1
Missing Data:	0		90.000	Percentile:	74.1
Data Recovery:	100.00%		100.000	Percentile:	77.4

SITE 1, AQM Averaging Time: 3600 sec

Table 3-21 Ambient Temperature Summary Statistics Site 1

RAIN (INCH) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	0.27	05/19/90	14:00:00		
Second Highest:	0.22	05/03/90	22:00:00		
Lowest Value:	0.00	05/01/90	00:00:00		
Arithmetic Mean:	0.01		10.000	Percentile:	0.00
Standard Deviation:	0.03		20.000	Percentile:	0.00
			30.000	Percentile:	0.00
Geometric Mean:	0.00		40.000	Percentile:	0.00
Standard Deviation:	1.00		50.000	Percentile:	0.00
			60.000	Percentile:	0.00
Valid Data:	744		70.000	Percentile:	0.00
Invalid Data:	0		80.000	Percentile:	0.01
Missing Data:	0		90.000	Percentile:	0.04
Data Recovery:	100.00%		100.000	Percentile:	0.27

SITE 1, AQM Averaging Time: 3600 sec

Table 3-22. Precipitation Summary Statistics Site 1

SO2 (PPB) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	0.	05/04/90	06:00:00		
Second Highest:	0.	05/04/90	21:00:00		
Lowest Value:	0.	05/01/90	00:00:00		
Arithmetic Mean:	0.		10.000	Percentile:	0.
Standard Deviation:	0.		20.000	Percentile:	0.
			30.000	Percentile:	0.
Geometric Mean:	0.		40.000	Percentile:	0.
Standard Deviation:	1.		50.000	Percentile:	0.
			60.000	Percentile:	0.
Valid Data:	731		70.000	Percentile:	0.
Invalid Data:	13		80.000	Percentile:	0.
Missing Data:	0		90.000	Percentile:	0.
Data Recovery:	98.25%		100.000	Percentile:	0.

SITE 1, AQM Averaging Time: 3600 sec

Table 3-23. Sulfur Dioxide Summary Statistics Site 1

H2S (PPB) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	17.	05/16/90	09:00:00		
Second Highest:	0.	05/04/90	06:00:00		
Lowest Value:	0.	05/01/90	00:00:00		
Arithmetic Mean:	0.			10.000 Percentile:	0.
Standard Deviation:	1.			20.000 Percentile:	0.
				30.000 Percentile:	0.
Geometric Mean:	1.			40.000 Percentile:	0.
Standard Deviation:	1.			50.000 Percentile:	0.
				60.000 Percentile:	0.
Valid Data:	737			70.000 Percentile:	0.
Invalid Data:	7			80.000 Percentile:	0.
Missing Data:	0			90.000 Percentile:	0.
Data Recovery:	99.06%			100.000 Percentile:	17.

SITE 1, AQM Averaging Time: 3600 sec

Table 3-24. Hydrogen Sulfide Summary Statistics Site 1

3.2 Meteorological Monitoring Data Site 2

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 2, MET WD (DEG) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	347	0	324	297	300	304	308	343	358	37	45	49	58	68	65	68	67	36	43	57	44	329	324	321
2	346	313	296	319	291	292	308	324	355	18	54	38	67	66	77	73	47	38	48	46	32	37	30	334
3	315	310	315	315	318	323	323	339	359	348	11	24	19	16	12	5	356	2	345	343	340	340	344	345
4	343	334	335	332	332	330	329	338	341	351	355	3	9	6	8	5	0	360	356	347	341	339	339	338
5	339	332	337	351	346	344	3	13	347	352	5	5	13	18	16	15	360	354	351	350	357	354	0	13
6	7	4	355	355	355	346	346	358	357	23	36	39	44	43	37	34	34	26	6	350	356	353	351	346
7	353	353	28	334	327	320	317	334	345	338	1	28	48	43	42	44	43	39	32	28	15	20	27	36
8	34	43	42	58	17	27	3	5	21	2	2	356	351	2	9	9	1	343	330	328	334	324	338	331
9	335	334	329	321	323	315	313	337	331	9	9	40	50	66	73	57	43	40	47	38	354	346	331	273
10	278	285	275	296	276	280	294	202	295	15	19	58	54	54	75	82	76	83	75	70	53	84	69	45
11	350	295	102	66	355	308	336	350	32	40	50	39	37	38	38	37	21	11	5	360	354	342	342	346
12	341	341	336	330	330	321	317	339	359	14	33	36	38	36	44	41	22	14	360	348	339	332	323	310
13	306	306	302	302	302	348	303	309	334	1	20	13	47	41	47	47	43	46	40	48	325	351	357	310
14	304	301	300	297	303	305	309	332	5	38	54	54	56	55	38	61	53	42	43	49	41	37	28	355
15	345	336	326	328	321	326	316	330	12	17	11	22	18	20	5	12	8	2	6	344	333	331	327	320
16	316	312	312	308	311	309	311	325	346	3	9	31	34	32	33	35	30	7	20	351	344	325	314	327
17	324	327	313	328	324	316	319	345	344	5	6	10	28	5	359	23	357	350	340	329	332	326	325	327
18	322	327	325	320	320	322	312	346	341	344	26	40	39	32	35	24	30	23	43	20	26	355	14	354
19	355	332	329	329	332	337	331	334	341	341	348	358	356	352	14	39	32	4	9	347	360	11	17	4
20	348	348	345	347	319	326	344	340	355	3	25	35	31	32	43	43	42	37	17	344	342	20	35	36
21	36	41	38	30	29	21	355	34	52	45	51	43	47	38	36	31	24	21	14	11	17	22	39	33
22	10	10	11	11	356	357	1	357	360	357	29	26	26	19	7	3	2	357	350	339	331	328	333	332
23	325	323	326	323	317	324	323	323	324	336	5	14	11	347	349	350	343	338	328	323	317	327	324	321
24	330	324	326	1	36	27	4	12	16	27	29	21	23	31	35	24	19	11	7	348	343	343	344	335
25	326	338	336	338	336	65	64	63	56	51	40	36	50	32	30	32	26	7	352	348	344	344	341	342
26	334	326	325	332	333	350	348	335	349	12	40	48	52	54	43	36	36	32	19	26	14	0	359	17
27	353	357	354	335	359	11	51	52	57	56	52	49	44	46	46	48	43	34	24	24	21	38	18	26
28	31	26	2	1	351	353	348	358	12	31	31	43	35	32	34	27	34	34	22	13	4	349	346	355
29	356	344	357	356	338	356	26	9	359	18	28	27	20	31	24	28	32	356	357	1	348	26	51	40
30	47	22	354	0	3	14	351	355	358	33	35	39	42	35	32	25	26	22	8	10	341	336	313	315
31	327	328	343	337	340	354	342	2	13	9	357	34	34	34	34	29	31	25	21	28	359	341	332	344

Table 3-25. Wind Direction Monthly Summary Site 2

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 2, MET WS (MPH) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.5	1.2	1.3	3.4	3.7	5.2	4.9	5.1	5.6	5.6	5.7	5.7	6.7	8.7	7.1	7.2	6.1	5.0	4.9	2.1	1.7	1.4	1.7	1.6
2	2.3	0.8	0.8	1.3	4.5	1.8	3.4	4.1	4.8	4.7	6.0	5.3	6.8	7.8	7.5	6.1	5.3	4.8	3.3	1.9	0.3	0.6	0.5	1.7
3	3.0	2.7	3.3	4.4	3.9	3.7	3.4	5.5	5.9	7.3	6.4	7.6	8.8	8.2	7.7	6.5	7.5	7.5	13.0	15.2	14.4	14.3	12.8	11.6
4	11.4	11.6	11.5	10.5	10.2	12.1	11.3	14.0	14.1	12.6	12.5	11.2	10.9	10.8	10.7	10.8	10.3	8.2	8.2	9.3	10.7	10.3	9.8	9.3
5	8.5	6.4	5.7	5.4	6.8	7.9	5.7	5.5	7.9	9.4	9.9	11.1	9.8	9.4	9.8	9.1	8.7	8.5	9.1	10.3	8.7	8.6	6.9	6.5
6	5.9	6.9	8.8	9.5	8.8	9.7	9.5	6.3	6.6	6.9	8.8	8.2	9.1	10.3	9.3	8.2	7.2	5.6	4.5	4.9	5.1	5.0	5.1	5.7
7	5.2	4.4	3.4	5.0	4.0	3.7	3.8	4.6	7.1	7.2	5.9	6.3	8.6	7.9	8.7	9.0	7.8	6.7	5.2	4.1	3.3	3.1	3.3	4.1
8	3.1	4.9	4.0	3.9	0.9	2.3	2.7	3.6	3.4	4.1	4.1	4.6	5.6	5.3	4.7	4.8	4.9	4.6	4.6	4.4	4.9	4.4	3.6	4.7
9	4.7	4.6	4.0	3.7	2.6	2.7	4.9	7.6	5.3	4.2	5.6	6.2	6.9	8.0	7.4	6.5	6.2	5.7	4.0	2.0	1.5	3.1	1.5	1.5
10	4.5	2.8	1.6	1.9	2.3	2.1	1.3	0.6	4.0	2.9	3.8	6.4	3.4	6.3	5.9	5.5	6.1	5.4	2.7	2.2	2.5	0.3	0.6	0.0
11	0.8	0.7	0.8	0.2	2.1	1.6	1.9	3.2	4.7	5.2	5.8	6.6	6.6	6.2	6.4	6.6	6.4	5.9	4.9	3.9	4.7	5.1	5.6	4.3
12	4.9	5.7	5.7	5.1	5.7	4.7	4.7	6.3	5.8	5.8	7.1	7.8	8.6	7.7	8.3	7.7	7.5	6.2	5.8	5.9	7.5	6.5	5.9	5.9
13	6.4	6.3	5.9	4.7	4.4	1.8	3.6	4.6	5.8	5.4	5.4	4.7	7.9	8.4	8.9	8.8	7.9	6.9	4.5	1.6	1.0	0.6	1.3	2.2
14	3.5	4.0	2.5	3.4	3.1	4.0	4.1	3.4	3.6	5.3	6.5	7.8	7.9	6.3	5.9	5.9	5.5	5.4	6.0	5.2	5.4	4.9	3.6	2.5
15	5.1	5.6	6.1	5.6	4.5	3.5	2.5	5.0	5.5	5.6	7.7	7.6	8.0	8.0	8.1	7.8	7.8	6.9	4.8	5.4	5.9	6.6	6.5	6.2
16	5.9	6.3	5.9	6.2	6.6	6.3	6.0	6.0	7.1	6.6	6.1	6.8	6.8	7.7	7.5	6.9	6.1	3.9	4.0	3.6	5.4	5.3	5.3	4.9
17	5.4	5.9	6.1	5.9	5.6	5.6	6.1	6.0	8.2	5.8	6.9	6.1	5.2	7.1	6.9	6.3	5.8	6.0	7.0	6.9	6.0	6.0	6.5	6.5
18	6.3	5.5	5.5	5.4	5.3	4.3	3.7	4.4	4.8	6.4	6.9	9.2	8.0	9.2	8.6	6.1	5.4	5.2	4.1	3.2	2.7	3.1	2.4	3.6
19	5.8	7.3	7.2	7.7	8.2	7.5	8.8	8.7	9.5	8.8	9.3	8.6	6.4	7.1	5.8	6.4	6.0	6.0	6.3	5.8	4.2	3.7	4.5	3.6
20	5.1	4.9	4.9	4.6	5.5	5.4	6.8	9.1	7.3	6.0	6.8	8.5	8.4	8.1	8.7	9.3	8.6	7.0	6.3	6.9	6.9	4.7	5.3	5.9
21	5.7	6.0	4.0	5.5	4.9	5.2	5.1	5.9	6.7	7.3	9.2	8.0	7.3	8.1	8.3	7.0	7.1	7.4	5.9	5.2	5.1	4.6	5.9	5.2
22	4.2	2.7	3.3	3.3	4.0	5.0	5.0	5.4	5.4	6.1	6.0	7.4	7.4	8.0	8.0	8.1	7.9	8.4	8.7	9.1	9.1	9.3	8.9	7.9
23	7.7	7.7	7.6	7.0	7.0	6.9	6.3	6.5	6.2	7.1	5.3	5.7	5.5	6.0	6.2	7.4	8.1	7.0	6.6	5.5	5.6	5.8	5.2	5.2
24	3.6	4.3	3.6	0.9	3.0	4.1	4.6	6.2	7.1	7.8	8.5	7.9	8.3	8.2	8.6	7.2	7.2	7.1	5.3	7.3	7.8	6.7	6.6	6.9
25	5.3	5.3	6.8	7.7	5.9	6.9	6.5	5.9	7.0	7.1	6.8	7.1	8.9	6.3	5.7	6.7	6.3	5.9	8.1	8.6	8.1	8.1	7.6	6.4
26	5.8	5.5	5.0	5.2	4.7	3.7	3.2	5.9	4.8	5.9	6.4	7.3	8.6	9.1	8.4	8.0	7.6	6.9	6.2	6.4	6.1	7.0	7.7	5.4
27	7.2	6.0	5.6	6.6	2.2	1.4	3.9	5.4	6.4	6.6	7.6	7.2	7.3	7.5	8.6	8.8	7.4	6.9	4.4	3.9	3.2	3.9	2.3	2.2
28	2.4	1.4	1.5	2.0	3.6	3.9	4.9	5.4	5.1	5.9	5.7	7.7	8.0	7.5	8.3	7.4	6.8	7.0	5.9	4.8	5.5	6.9	7.7	7.4
29	6.1	4.7	4.6	4.8	4.3	3.8	4.9	3.8	5.3	5.9	7.3	8.5	7.8	8.9	8.0	7.0	7.6	6.3	6.6	6.0	5.7	6.2	7.3	4.7
30	5.2	2.4	3.0	3.3	2.7	2.3	3.8	5.1	6.2	6.7	7.3	8.3	9.2	8.3	8.1	7.3	7.1	5.8	5.4	3.8	3.9	4.1	2.0	2.9
31	2.0	1.9	2.6	2.1	2.5	1.7	2.8	4.1	4.9	5.0	5.9	6.8	7.6	7.7	8.3	7.2	7.4	6.9	5.6	5.4	4.1	5.8	4.8	5.9

Table 3-26. Wind Speed Monthly Summary Site 2

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 2, MET SigÕ1 (deg) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	21.5	57.0	36.1	16.3	14.3	12.5	14.3	22.1	28.9	27.5	29.1	27.4	25.3	19.1	20.5	20.4	20.3	26.2	20.5	25.6	34.5	26.0	20.3	43.9
2	29.8	20.4	17.2	47.6	15.4	15.7	15.0	24.9	30.2	30.6	25.6	29.6	28.4	25.6	22.5	23.1	24.2	22.9	19.4	19.1	21.9	24.0	24.7	18.3
3	17.1	15.4	17.6	15.7	14.4	15.3	15.2	21.6	30.3	25.1	32.2	31.7	30.7	32.4	30.4	30.9	28.6	31.2	20.7	17.2	19.6	20.3	22.4	22.4
4	22.3	17.4	18.2	15.7	16.4	16.3	16.3	18.1	21.2	25.1	27.5	32.6	32.2	31.9	32.4	33.4	31.2	29.5	27.4	19.7	18.1	18.2	16.5	16.5
5	17.1	22.1	20.1	27.3	21.6	23.1	31.3	30.3	23.2	23.2	32.5	33.1	33.3	31.9	33.3	34.7	31.2	28.9	27.4	23.6	29.8	27.5	29.5	33.6
6	31.1	32.6	26.7	25.8	26.9	22.6	23.2	31.1	27.8	30.0	26.7	27.9	24.2	22.4	25.3	29.2	28.5	27.8	29.7	23.0	25.7	27.3	22.9	21.4
7	26.8	27.0	31.1	20.2	18.5	17.6	16.5	18.6	22.7	22.7	29.7	32.3	22.6	27.0	25.2	23.2	24.5	23.1	27.0	27.5	29.3	28.7	28.5	23.2
8	26.4	23.5	24.9	22.1	33.4	30.1	29.2	32.3	31.3	29.7	31.4	26.8	25.3	28.2	31.9	28.5	29.5	21.2	17.4	17.5	15.7	16.6	19.3	17.0
9	20.5	20.9	16.9	17.4	16.4	15.8	15.5	20.2	24.8	30.9	30.4	30.7	24.2	21.6	24.7	20.8	23.8	22.4	20.4	20.9	24.0	22.0	32.2	58.3
10	14.3	17.6	31.8	15.3	17.0	18.6	33.9	49.9	18.2	36.6	36.3	28.2	29.0	25.2	26.7	23.1	18.7	17.0	19.6	20.7	27.1	45.2	27.5	55.4
11	22.7	54.8	57.8	43.4	19.3	13.2	18.5	26.0	30.7	25.2	23.4	27.6	25.4	25.3	23.5	24.8	29.5	30.7	29.3	25.9	23.6	20.9	17.7	24.9
12	18.2	14.7	17.2	17.1	16.1	15.8	16.5	19.0	29.0	30.6	28.6	28.0	26.9	32.0	27.5	25.9	29.7	32.4	28.9	20.5	15.8	16.0	16.1	14.6
13	13.9	13.3	14.1	14.1	13.1	26.8	17.2	16.8	23.7	30.3	30.4	31.5	26.8	28.0	22.5	21.4	24.1	20.5	23.2	21.4	25.9	24.7	21.0	14.9
14	16.5	15.3	14.7	13.9	13.7	14.3	14.3	18.6	30.6	34.5	22.6	22.1	23.7	23.2	25.4	23.0	21.0	22.7	23.7	20.1	21.2	22.1	26.7	24.2
15	21.0	16.1	16.3	17.0	16.5	16.1	29.3	19.1	28.4	32.0	27.6	32.3	33.3	32.3	31.7	31.3	30.6	30.8	29.3	18.0	14.7	15.0	16.4	16.0
16	15.7	14.3	14.9	14.4	14.1	14.7	14.9	15.5	25.7	32.4	34.1	27.9	30.6	29.6	26.8	27.4	28.9	31.7	28.9	23.7	16.0	16.0	15.0	16.4
17	15.9	15.8	15.8	17.5	19.8	16.6	16.0	23.1	23.4	32.6	29.8	31.4	29.6	31.2	31.3	29.6	29.2	27.6	16.8	16.0	20.4	15.9	16.1	19.1
18	16.5	16.6	18.1	16.0	15.8	20.4	14.3	28.4	30.3	27.1	28.9	24.9	25.8	29.5	28.1	29.5	25.7	26.2	40.1	29.6	28.9	26.3	30.3	24.5
19	22.7	19.1	18.5	17.4	17.6	18.0	16.6	18.0	22.4	22.6	24.6	29.7	29.8	27.3	32.9	26.2	27.6	31.4	28.7	25.2	32.5	34.8	32.8	32.5
20	25.2	28.5	28.5	25.4	20.1	20.4	24.7	20.8	30.8	33.3	30.6	27.6	28.4	30.4	24.9	24.6	22.9	27.1	28.2	21.4	23.1	29.5	27.6	25.7
21	26.9	25.2	26.3	30.8	25.8	29.0	26.7	29.1	22.5	25.4	20.1	25.7	23.0	26.3	26.7	29.8	29.0	29.0	33.0	31.7	32.3	31.2	21.6	24.1
22	30.1	29.3	31.8	29.0	28.5	29.6	32.0	29.7	30.4	27.5	30.9	30.7	31.1	32.0	30.8	29.5	30.3	26.7	23.8	17.7	16.0	16.5	15.8	17.6
23	16.8	16.3	15.4	17.5	15.0	15.9	17.6	19.4	19.1	20.2	31.7	31.8	32.0	26.0	26.2	26.8	24.0	20.5	18.6	21.3	16.4	17.0	17.7	19.8
24	22.7	17.4	23.1	47.2	30.7	29.5	33.5	33.3	32.0	31.7	29.2	32.4	31.3	28.2	25.9	31.8	31.7	32.0	29.2	22.7	21.4	23.5	22.3	18.1
25	17.1	20.5	19.0	17.0	22.5	21.9	23.7	23.1	20.2	22.4	23.2	27.8	22.5	26.0	29.8	28.2	29.6	31.1	25.3	24.0	23.4	21.3	21.6	21.5
26	22.4	17.4	16.5	17.0	20.8	32.8	27.6	19.9	29.5	33.0	25.6	24.5	23.7	23.0	24.3	24.9	26.4	28.0	28.2	28.6	30.9	29.3	26.8	31.3
27	27.6	29.0	28.7	19.7	37.8	46.0	24.1	25.9	23.5	21.2	23.0	23.1	23.4	24.2	23.0	21.3	22.7	25.4	29.3	28.9	30.4	24.3	28.6	29.2
28	24.8	25.2	20.5	26.7	23.2	25.3	22.6	29.1	31.5	27.4	29.3	25.2	28.6	28.5	26.7	32.0	25.8	27.1	28.4	33.4	29.3	22.5	20.8	26.2
29	26.5	27.1	29.8	30.0	26.7	25.3	26.2	26.2	28.0	32.8	29.7	28.9	33.3	31.2	31.7	29.7	27.3	26.0	27.0	28.1	24.0	28.6	20.3	23.2
30	21.6	29.2	27.4	29.0	30.7	32.8	29.8	26.8	29.3	28.0	25.3	24.6	24.1	28.1	29.2	27.9	28.7	30.3	31.5	30.6	24.0	21.6	56.6	42.2
31	34.0	24.2	27.9	20.2	20.8	23.7	23.2	29.0	29.7	26.5	28.7	30.0	29.5	25.4	26.9	29.3	26.5	27.6	29.3	26.8	26.2	18.6	18.7	23.6

Table 3-27. Sigma Theta Monthly Summary Site 2

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 2, MET VWS (MPH) DATA FOR: MAY 1990

HOURS (DST)

HR-END DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.3	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0
2	0.0	0.0	-0.2	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	-0.2	-0.1	-0.3	-0.2	-0.2	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1	0.0	-0.1	-0.1	0.0	-0.2	-0.1	-0.1	-0.1	-0.3	-0.2	-0.2	-0.1	-0.1
4	-0.2	-0.2	-0.4	-0.3	-0.4	-0.3	-0.3	-0.3	-0.2	0.1	-0.1	-0.4	0.0	0.0	-0.2	-0.2	-0.2	-0.3	0.0	-0.1	-0.2	-0.2	-0.2	0.0
5	0.0	-0.2	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.2	0.0	-0.3	-0.3	-0.2	-0.3	-0.2	-0.2	0.0	-0.2	0.0	-0.1	-0.1	-0.1
6	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	-0.2	-0.2	-0.3	-0.2	0.0	-0.2	0.0	0.0	0.0	0.0	-0.1	0.1	0.0
7	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.1	0.1
8	0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	-0.1	0.0	-0.3	-0.1	-0.1	-0.2	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.2	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.2	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.0
13	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	-0.2	-0.1	-0.3	-0.3	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	-0.1	0.0	-0.2	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.1	0.1	0.0
15	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	0.0	-0.2	0.0	-0.2	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.1	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.2	-0.1	-0.2	0.1	-0.2	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	-0.1
17	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	0.0	-0.1	0.0	0.1	0.1	-0.2	0.0	0.0	0.0	0.0	0.1
19	0.0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	0.1	0.0	-0.1	0.1	-0.1	0.2
21	0.1	0.0	0.0	-0.1	0.0	0.1	0.0	-0.2	-0.1	0.0	-0.1	0.0	-0.3	-0.1	-0.1	-0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
22	0.2	0.0	0.0	0.1	0.0	0.1	-0.1	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.3	-0.1	0.0	0.0	0.1	-0.1	-0.2	-0.2	-0.2	-0.1
23	-0.1	-0.2	-0.2	-0.2	0.0	-0.1	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.2	-0.1	-0.3	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.3	-0.3	-0.2	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.2	-0.1	-0.1	0.0	0.0	-0.2	0.0	-0.1	0.2	0.0	-0.1	0.0
27	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.1	0.0	0.0	0.0	0.0	0.1	0.0
28	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.3	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.0
29	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	-0.2	0.0
30	-0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	-0.2	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Table 3-28. Vertical Wind Speed Monthly Summary Site 2

MONTHLY SUMMARY REPORT

TRUE GEOTHERMAL

LOCATION: SITE 2, MET SIG W (DEG) DATA FOR: MAY 1990

HR-END DAY	HOURS (DST) 01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.3	0.3	0.2	0.2	0.3
2	0.2	0.2	0.1	0.2	0.3	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.2
3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.7	0.7	0.8	0.9	1.0	1.0	1.0	0.8	0.8	0.9	1.0	0.9	0.9	0.8	1.0	0.8
4	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.9	1.1	1.1	1.3	1.4	1.2	1.5	1.3	1.2	0.9	0.9	0.6	0.6	0.6	0.6	0.6
5	0.5	0.4	0.4	0.6	0.6	0.6	0.7	0.7	0.6	0.7	1.1	1.4	1.2	1.2	1.2	1.1	1.0	0.8	0.9	0.7	0.9	0.8	0.8	0.9
6	0.8	0.8	0.9	0.9	0.9	0.6	0.8	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.8	0.6	0.6	0.4	0.5	0.4	0.4	0.4
7	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.5	0.7	0.7	0.7	0.8	0.8	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.5	0.5
8	0.5	0.5	0.5	0.4	0.2	0.3	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.7	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.3	0.2	0.3
9	0.3	0.3	0.2	0.2	0.1	0.2	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.4	0.3	0.2	0.3	0.2	0.2
10	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.4	0.6	0.6	0.4	0.6	0.4	0.4	0.4	0.4	0.2	0.2	0.3	0.1	0.1	0.0
11	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.6	0.6	0.6	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.6	0.4	0.4	0.3	0.4	0.3
12	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.5	0.6	0.7	0.8	0.8	1.0	0.9	0.9	0.8	0.9	0.8	0.7	0.5	0.4	0.3	0.4	0.3
13	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.7	0.6	0.8	0.8	0.8	0.7	0.8	0.6	0.5	0.2	0.1	0.1	0.1	0.1
14	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.3
15	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.6	0.7	0.8	0.9	1.0	1.0	1.0	0.9	0.9	0.8	0.6	0.3	0.3	0.3	0.4	0.4
16	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.6	0.7	0.7	0.7	0.8	0.7	0.9	0.7	0.8	0.5	0.5	0.3	0.3	0.4	0.3	0.2
17	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.5	0.7	0.7	0.8	0.6	0.8	0.8	0.8	0.7	0.5	0.4	0.4	0.5	0.4	0.4	0.4
18	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.4	0.6	0.8	0.9	0.8	1.0	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.3	0.4	0.3
19	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.8	0.9	0.8	0.6	0.7	0.7	0.8	0.7	0.7	0.5	0.5	0.6	0.7	0.4
20	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.8	0.8	0.9	1.0	1.0	0.9	0.8	0.9	0.8	0.8	0.5	0.5	0.7	0.7	0.7
21	0.7	0.7	0.5	0.7	0.5	0.7	0.5	0.7	0.6	0.7	0.7	0.9	0.7	0.9	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6
22	0.6	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.4	0.6	0.5	0.4	0.4
23	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.7	0.7	0.7	0.5	0.6	0.6	0.7	0.5	0.4	0.3	0.3	0.4	0.3	0.3
24	0.2	0.3	0.2	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.3	0.9	1.0	0.8	0.9	1.0	0.9	0.9	0.7	0.5	0.5	0.4	0.5	0.5
25	0.3	0.3	0.4	0.4	0.4	0.7	0.6	0.5	0.7	0.7	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.4
26	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.7	0.6	0.7	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.7
27	0.6	0.6	0.5	0.4	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.3
28	0.3	0.2	0.1	0.2	0.3	0.4	0.4	0.6	0.7	0.7	0.6	0.7	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.5	0.6	0.7
29	0.7	0.5	0.5	0.5	0.3	0.4	0.6	0.5	0.6	0.8	0.8	1.0	0.9	1.0	1.0	0.8	0.8	0.6	0.6	0.6	0.5	0.8	0.6	0.5
30	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.6	0.7	0.8	0.9	0.9	0.9	1.1	1.0	0.8	0.9	0.9	0.6	0.5	0.3	0.2	0.2	0.2
31	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.7	0.6	0.6	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.4

Table 3-29. Sigma W Monthly Summary Site 2

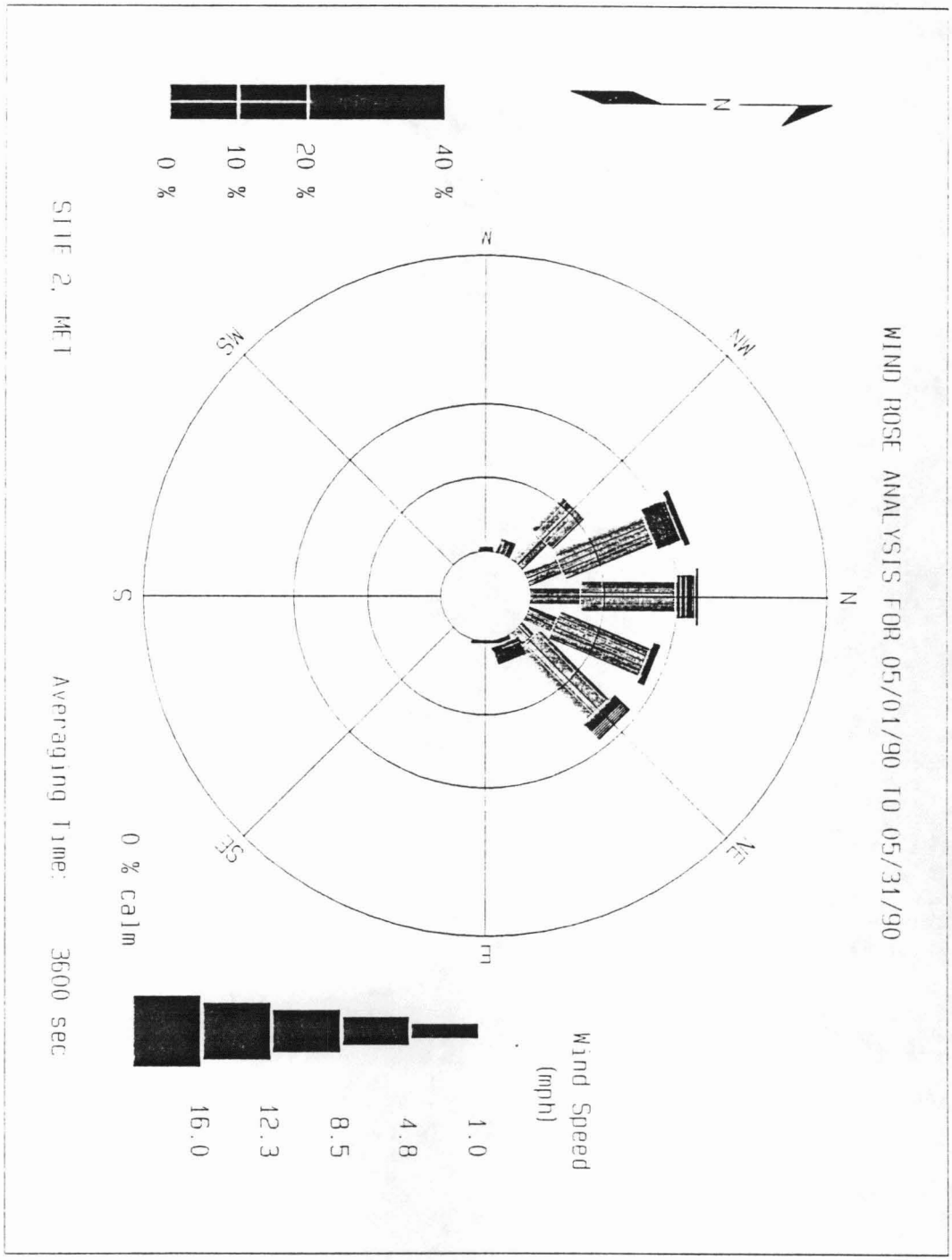

Figure 3-2. Wind Rose Analysis Site 2

WD (DEG) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	360.	05/04/90	17:00:00
Second Highest:	360.	05/05/90	16:00:00
Lowest Value:	0.	05/01/90	01:00:00

Arithmetic Mean:	177.	10.000 Percentile:	11.
Standard Deviation:	153.	20.000 Percentile:	24.
		30.000 Percentile:	34.
Geometric Mean:	81.	40.000 Percentile:	43.
Standard Deviation:	5.	50.000 Percentile:	68.
		60.000 Percentile:	317.
Valid Data:	744	70.000 Percentile:	330.
Invalid Data:	0	80.000 Percentile:	341.
Missing Data:	0	90.000 Percentile:	351.
Data Recovery:	100.00%	100.000 Percentile:	360.

SITE 2, MET Averaging Time: 3600 sec

Table 3-30. Wind Direction Summary Statistics Site 2

WS (MPH) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	15.2	05/03/90	19:00:00
Second Highest:	14.4	05/03/90	20:00:00
Lowest Value:	0.0	05/10/90	23:00:00

Arithmetic Mean:	5.9	10.000 Percentile:	2.7
Standard Deviation:	2.4	20.000 Percentile:	4.0
		30.000 Percentile:	4.9
Geometric Mean:	5.2	40.000 Percentile:	5.4
Standard Deviation:	1.7	50.000 Percentile:	5.9
		60.000 Percentile:	6.4
Valid Data:	744	70.000 Percentile:	7.0
Invalid Data:	0	80.000 Percentile:	7.7
Missing Data:	0	90.000 Percentile:	8.7
Data Recovery:	100.00%	100.000 Percentile:	15.2

SITE 2, MET Averaging Time: 3600 sec

Table 3-31. Wind Speed Summary Statistics Site 2

Sigé1 (deg) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	58.3	05/09/90	23:00:00
Second Highest:	57.8	05/11/90	02:00:00
Lowest Value:	12.5	05/01/90	05:00:00

Arithmetic Mean:	25.1	10.000 Percentile:	16.4
Standard Deviation:	6.6	20.000 Percentile:	18.7
		30.000 Percentile:	21.5
Geometric Mean:	24.3	40.000 Percentile:	23.4
Standard Deviation:	1.3	50.000 Percentile:	25.4
		60.000 Percentile:	27.1
Valid Data:	744	70.000 Percentile:	28.9
Invalid Data:	0	80.000 Percentile:	30.0
Missing Data:	0	90.000 Percentile:	31.9
Data Recovery:	100.00%	100.000 Percentile:	58.3

SITE 2, MET Averaging Time: 3600 sec

Table 3-32. Sigma Theta Summary Statistics Site 2

VWS (MPH) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	0.2	05/22/90	00:00:00
Second Highest:	0.2	05/20/90	23:00:00
Lowest Value:	-0.4	05/04/90	11:00:00

Arithmetic Mean:	0.0	10.000 Percentile:	-0.2
Standard Deviation:	0.1	20.000 Percentile:	-0.1
		30.000 Percentile:	-0.1
Geometric Mean:	0.0	40.000 Percentile:	0.0
Standard Deviation:	1.0	50.000 Percentile:	0.0
		60.000 Percentile:	0.0
Valid Data:	744	70.000 Percentile:	0.0
Invalid Data:	0	80.000 Percentile:	0.0
Missing Data:	0	90.000 Percentile:	0.0
Data Recovery:	100.00%	100.000 Percentile:	0.2

SITE 2, MET Averaging Time: 3600 sec

Table 3-33. Vertical Wind Speed Summary Statistics Site 2

SIG W (DEG) SUMMARY STATISTICS FOR 05/01/90 - 05/31/90

Highest Value:	1.481	05/04/90	14:00:00		
Second Highest:	1.442	05/05/90	11:00:00		
Lowest Value:	0.040	05/10/90	23:00:00		
Arithmetic Mean:	0.558		10.000	Percentile:	0.217
Standard Deviation:	0.254		20.000	Percentile:	0.316
			30.000	Percentile:	0.395
Geometric Mean:	0.000		40.000	Percentile:	0.474
Standard Deviation:	1.000		50.000	Percentile:	0.553
			60.000	Percentile:	0.612
Valid Data:	744		70.000	Percentile:	0.711
Invalid Data:	0		80.000	Percentile:	0.790
Missing Data:	0		90.000	Percentile:	0.889
Data Recovery:	100.00%		100.000	Percentile:	1.481

SITE 2, MET Averaging Time: 3600 sec

Table 3-34. Sigma W Summary Statistics Site 2

MEASUREMENT TECHNOLOGIES

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